

AMENDMENTS TO THE DRAWINGS

The attached sheet of drawings includes changes to Figure 1. This sheet including Figure 1 replaces the original sheet including Figure 1.

Attachment: Replacement sheet

REMARKS

On entry of this response, claims have been amended. Now pending in the application are claims 1-14, of which claim 1 is independent.

I. Drawings

In the foregoing amendments to the drawings, Figure 1 is designated by a legend "Prior Art." In view of the amendments to the drawings, Applicants respectfully request that the Examiner reconsider and withdraw the objection to the drawings.

II. Claim Objections

Claim 9 is objected to because of minor informalities. (Office Action, page 2). Applicants have amended claim 9 to add a period at the end of the sentence. In view of the amendment to claim 9, Applicants respectfully request that the Examiner reconsider and withdraw the objection to claim 9.

III. Claim Rejections under 35 U.S.C. §112, First Paragraph

Claim 14 is rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. (Office Action, page 2). The Office Action states that "[t]he use of a laser point as the light emitting means is not clearly described in the specification." (Office Action, page 3, first paragraph). Applicants respectfully traverse this rejection.

The present application, at page 5, describes that:

A laser pointer is used as the light emitting apparatus 48 for generating the light having a predetermined wavelength. Before measurement of the measuring object 100, the control unit 50 irradiates the light generated from the light emitting apparatus 48 to the reference surface, receives the reflected light image through the image obtaining apparatus 40, calculates a vertical distance between the reference surface and the image obtaining apparatus 40, and controls the distance of Z shaft direction of the image obtaining apparatus 40 by controlling the XYZ shaft transfer apparatus 10 according to the result, thereby maintaining the focus

distance of the measuring object 100 and the image obtaining apparatus 40.

Applicants submit that the present application clearly describes that a laser pointer is used as the light emitting apparatus for generating the light having a predetermined wavelength. Applicants also submit that the present application describes the light emitting apparatus with reference to Figure 2. As such, Applicants believe that the present application describes the subject matter contained in claim 14 in such a way as to enable one skilled in the art to make and/or use the invention. Applicants, therefore, request that the Examiner reconsider and withdraw the rejection of claim 14.

IV. Claim Rejections under 35 U.S.C. §112, Second Paragraph

Claims 6 and 11 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. (Office Action, page 3). Applicants have amended claims 6 and 11 to remove “can be.” In view of the amendments, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 6 and 11.

V. Claim Rejections under 35 U.S.C. §103(a)

A. Claims 1-4 and 14

Claims 1-4 and 14 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. patent No. 7,040,945 (“Yabe”) in view of U.S. Patent Application Publication No. 2006/0268276 (“Tajima”). (Office Action, page 3). Applicants respectfully traverse this rejection in view of the amended claims.

Applicants submit that Yabe and Tajima, alone or in any reasonable combination, do not teach or suggest “a work stage having first and second guides and a guide transfer apparatus mounted to the base member, for moving a measuring object to a measuring position and thereafter supporting it and having a predetermined reference surface set at a side thereof,” as recited in amended claim 1.

The Yabe reference discloses an apparatus for forming barrier ribs of a panel used for a flat panel display, such as a plasma display and an organic electroluminescence (EL) display. The Yabe reference discloses a discharge part (52) having a group of discharge ports for discharging rib material to a substrate, a transfer mechanism (2) for transferring the discharge part relatively to the substrate in a first direction along the main surface of the substrate, and an oscillating mechanism (4) for oscillating the discharge part relatively to the substrate in a second direction which is perpendicular to the first direction and parallel to the main surface.

In the Yabe reference, the transfer mechanism (2) has a structure in which a ball screw (22) is connected to a motor (21) and fitted into a nut (23) which is fixed to a stage (3). The Examiner contends that the stage (3) disclosed in the Yabe reference corresponds to the work stage recited in claim 1. (Office Action, page 4). Applicants respectfully disagree.

In Figure 2 and corresponding descriptions, the present application describes that the work stage (20) installs to an upper portion of a base member (30) and includes a first guide (21), a second guide (22) and a guide transfer apparatus (23). The present application also describes that a motor (24b) and a belt (24a) install at the insides of the first and second guides (21 and 22) for transferring the measuring object (100). The Yabe reference does not teach or suggest this structure of the work stage recited in claim 1. The stage (3) disclosed in the Yabe reference does not correspond to the work stage recited in claim 1.

The Tajima reference discloses a continuous optical measuring apparatus and a continuous optical measuring method. The continuous optical measuring apparatus of the Tajima reference teaches at least one transparent or semi-translucent storage part capable of storing a foundation member having a plurality of types of predetermined detection substances fixed thereto along an arrangement line at predetermined intervals, with the detection substances and their fixed positions associated; at least one light receiving part installed at a predetermined position outside of said storage part, and receiving light from said fixed positions, and receiving light from an area having a light receiving width narrower than the width of said arrangement line; and a continuous moving part which is continuously moved relatively between said light receiving part and said storage part so as to scan said fixed positions on said foundation member along a spiral moving line having said light receiving width, wherein said continuous moving

part has a rotation and straight line moving part which said continuous moving part has a rotation and straight line moving part which can rotate said storage part about a predetermined axis of rotation, and linearly move said storage part along said axis of rotation.

The Tajima reference, however, does not teach or suggest “a work stage having first and second guides and a guide transfer apparatus mounted to the base member, for moving a measuring object to a measuring position and thereafter supporting it and having a predetermined reference surface set at a side thereof,” as recited in claim 1. There is no disclosure in the Tajima reference of the work stage recited in claim 1.

In view of the arguments set forth above, Applicants submit that Yabe and Tajima, alone or in any reasonable combination, do not teach or suggest all of the limitations of claim 1. Claims 2-4 and 14, which depend from claim 1, are not rendered obvious over the cited references. Applicants, therefore, request that the Examiner reconsider and withdraw the rejection of claims 1-4 and 14.

B. Claims 5 and 6

Claims 5 and 6 are rejected under 35 U.S.C. §103(a) as being unpatentable over Yabe in view of Tajima and further in view of U.S. Patent No. 5,450,204 (“Shigeyama”). (Office Action, page 6). Applicants respectfully traverse this rejection in view of the amended claims.

Claims 5 and 6 depend from claim 1 and, as such, incorporate the subject matter of claim 1.

Applicants submit that Yabe, Tajima and Shigeyama, alone or in any reasonable combination, do not teach or suggest “a work stage having first and second guides and a guide transfer apparatus mounted to the base member, for moving a measuring object to a measuring position and thereafter supporting it and having a predetermined reference surface set at a side thereof,” as recited in claim 1.

As discussed above, Tajima and Shigeyama do not teach or suggest the work stage recited in claim 1.

The Shigeyama reference teaches an inspecting device for inspecting the printed state of cream solder. In the Shigeyama, the printed state of cream solder is inspected by projecting a plurality of light patterns varying in phase onto a printed circuit board with cream solder and processing signals obtained by an image pick-up device for picking up the image on the surface of the printed circuit board using a phase shifting method. (Shigeyama, Abstract).

The Shigeyama reference, however, does not teach “a work stage having first and second guides and a guide transfer apparatus mounted to the base member, for moving a measuring object to a measuring position and thereafter supporting it and having a predetermined reference surface set at a side thereof,” as recited in claim 1. There is no disclosure in the Shigeyama reference of the work stage recited in claim 1.

In view of the arguments set forth above, Applicants submit that Yabe, Tajima and Shigeyama, alone or in any reasonable combination, do not teach or suggest all of the limitations of claim 1. Claims 5-6, which depend from claim 1, are not rendered obvious over the cited references. Applicants, therefore, request that the Examiner reconsider and withdraw the rejection of claims 5-6.

Furthermore, Applicants submit that Yabe, Tajima and Shigeyama, alone or in any reasonable combination, do not teach or suggest “the image obtaining means comprises: a projection portion ...; a distributor, which is installed to a lower side of the projection portion ...; and an imaging unit which is installed to a lower side of the distributor ...,” as recited in claim 5.

The Examiner recognizes that the Yabe and Tajima references do not teach or suggest this feature. (Office Action, pages 6-7). The Examiner cites the Shigeyama reference to compensate for the deficiencies of the Yabe and Tajima references. The Examiner specifically refers to Figures 1-3 and column 3, lines 29-47 and column 4, lines 18-30 as teaching this feature of claim 5. Applicants respectfully disagree.

In Figures 3 and 4 and corresponding descriptions, the present application describes that the image obtaining means includes projection portion (41), a distributor (44) installed to the

lower side of the projection portion, and an imaging unit (45) installed to the lower side of the distributor.

In contrast, the Shigeyama reference, at column 4, lines 24-30, recites:

The illumination unit 2 including the optical fibers 20, condenser lenses 21 and 22, constant temperature control device 26 incorporated with the liquid crystal element 24, and the projection lens 25, etc. as described earlier with reference to FIG. 2, is also mounted on optical chassis 31 with the light therefrom being directed onto the printed circuit board by a deflection mirror 34.

The Examiner contends that the projection lens (25) and the deflection mirror (34) disclosed in the Shigeyama reference correspond to the projection portion and the imaging unit recited in claim 5, respectively. The Shigeyama reference, however, does not teach the structure of the projection portion, the distributor and the imaging unit recited in claim 5. The Shigeyama reference does not teach or suggest a distributor installed to the lower side of the projection portion, and an imaging unit installed to the lower side of the distributor.

In view of the arguments set forth above, Applicants submit that Yabe, Tajima and Shigeyama, alone or in any reasonable combination, do not teach or suggest all of the limitations of claim 5. Claim 6, which depends from claim 5, is not rendered obvious over the cited references. Applicants, therefore, request that the Examiner reconsider and withdraw the rejection of claims 5-6.

Furthermore, Applicants submit that Yabe, Tajima and Shigeyama, alone or in any reasonable combination, do not teach or suggest “a projection portion which produces a grating image through a light source emitting light and a grating, in which it is installed to a lower side of the light source for receiving the light emitted from the light source and moved by a grating transfer apparatus, and penetrates the produced grating image through a projection optical system installed to a lower side of the grating,” as recited in claim 5.

The Examiner contends that the Shigeyama reference teaches this feature. (Office Action page 7). Applicants respectfully disagree.

In Figure 1 and 3, the Shigeyama reference teaches an illumination unit (2) in which a liquid crystal element (24) is disposed in a constant temperature control device (26).

In contrast, the exemplary embodiment of the claimed invention shows that a diffraction grating (41b) is installed to a lower side of the light source (41a) for receiving the light emitted from the light source and moved by a grating transfer apparatus (41c). Applicants submit that the structure of the projection portion of the claimed invention is not taught in the Shigeyama reference.

In view of the arguments set forth above, Applicants submit that Yabe, Tajima and Shigeyama, alone or in any reasonable combination, do not teach or suggest all of the limitations of claim 5. Claim 6, which depends from claim 5, is not rendered obvious over the cited references. Applicants, therefore, request that the Examiner reconsider and withdraw the rejection of claims 5-6.

C. Claim 7

Claim 7 is rejected under 35 U.S.C. §103(a) as being unpatentable over Yabe in view of Shigeyama and further in view of U.S. Patent No. 4,971,445 (“Sato”). (Office Action, page 8). Applicants respectfully traverse this rejection in view of the amended claims.

Claim 7 depends from claim 1 and, as such, incorporates the subject matter of claim 1.

Applicants submit that Yabe, Shigeyama and Sato, alone or in any reasonable combination, do not teach or suggest “a work stage having first and second guides and a guide transfer apparatus mounted to the base member, for moving a measuring object to a measuring position and thereafter supporting it and having a predetermined reference surface set at a side thereof,” as recited in claim 1.

As discussed above, Yabe and Shigeyama do not teach or suggest the work stage recited in claim 1.

The Sato reference discloses laminated piezoelectric actuators (42 and 44) for Y and X scanning. The Sato reference, however, does not teach or suggest “a work stage having first and

second guides and a guide transfer apparatus mounted to the base member, for moving a measuring object to a measuring position and thereafter supporting it and having a predetermined reference surface set at a side thereof,” as recited in claim 1.

In view of the arguments set forth above, Applicants submit that Yabe, Shigeyama and Sato, alone or in any reasonable combination, do not teach or suggest all of the limitations of claim 1. Claim 7, which depends from claim 1, is not rendered obvious over the cited references. Applicants, therefore, request that the Examiner reconsider and withdraw the rejection of claim 7.

Furthermore, Applicants submit that Yabe, Shigeyama and Sato, alone or in any reasonable combination, do not teach or suggest “the image obtaining means comprises: a projection portion ...; a distributor, which is installed to a lower side of the projection portion ...; and an imaging unit which is installed to a lower side of the distributor ...,” as recited in claim 5.

As discussed above, Yabe and Shigeyama do not teach or suggest this feature.

The Sato reference teaches discloses laminated piezoelectric actuators (42 and 44) for Y and X scanning. The Sato reference, however, does not teach or suggest that “the image obtaining means comprises: a projection portion ...; a distributor, which is installed to a lower side of the projection portion ...; and an imaging unit which is installed to a lower side of the distributor ...,” as recited in claim 5.

In view of the arguments set forth above, Applicants submit that Yabe Shigeyama and Sato, alone or in any reasonable combination, do not teach or suggest all of the limitations of claim 5. Claim 7, which depends from claim 5, is not rendered obvious over the cited references. Applicants, therefore, request that the Examiner reconsider and withdraw the rejection of claim 7.

Furthermore, Applicants submit that Yabe Shigeyama and Sato, alone or in any reasonable combination, do not teach or suggest “a projection portion which produces a grating image through a light source emitting light and a grating, in which it is installed to a lower side

of the light source for receiving the light emitted from the light source and moved by a grating transfer apparatus, and penetrates the produced grating image through a projection optical system installed to a lower side of the grating,” as recited in claim 5.

As discussed above, Yabe and Shigeyama do not teach or suggest this feature.

The Sato reference teaches discloses laminated piezoelectric actuators (42 and 44) for Y and X scanning. The Sato reference, however, does not teach or suggest “a projection portion which produces a grating image through a light source emitting light and a grating, in which it is installed to a lower side of the light source for receiving the light emitted from the light source and moved by a grating transfer apparatus, and penetrates the produced grating image through a projection optical system installed to a lower side of the grating,” as recited in claim 5.

In view of the arguments set forth above, Applicants submit that Yabe, Shigeyama and Sato, alone or in any reasonable combination, do not teach or suggest all of the limitations of claim 5. Claim 7, which depends from claim 5, is not rendered obvious over the cited references. Applicants, therefore, request that the Examiner reconsider and withdraw the rejection of claim 7.

D. Claims 8-11

Claims 8-13 are rejected under 35 U.S.C. §103(a) as being unpatentable over Yabe in view of Tajima and further in view of Shigeyama. (Office Action, page 9). Applicants respectfully traverse this rejection in view of the amended claims.

Claims 8-13 depend from claim 1 and, as such, incorporate the subject matter of claim 1.

As discussed above, Yabe, Tajima and Shigeyama, alone or in any reasonable combination, do not teach or suggest “a work stage having first and second guides and a guide transfer apparatus mounted to the base member, for moving a measuring object to a measuring position and thereafter supporting it and having a predetermined reference surface set at a side thereof,” as recited in claim 1.

In view of the arguments set forth above, Applicants submit that Yabe, Tajima and Shigeyama, alone or in any reasonable combination, do not teach or suggest all of the limitations of claim 1. Claims 8-13, which depend from claim 1, are not rendered obvious over the cited references. Applicants, therefore, request that the Examiner reconsider and withdraw the rejection of claims 8-13.

Furthermore, Yabe, Tajima and Shigeyama, alone or in any reasonable combination, do not teach or suggest “the image obtaining means comprises: a projection portion ...; a distributor, which is installed to a lower side of the projection portion ...; and an imaging unit which is installed to a lower side of the distributor ...,” as recited in claim 5.

Furthermore, Yabe, Tajima and Shigeyama, alone or in any reasonable combination, do not teach or suggest “a projection portion which produces a grating image through a light source emitting light and a grating, in which it is installed to a lower side of the light source for receiving the light emitted from the light source and moved by a grating transfer apparatus, and penetrates the produced grating image through a projection optical system installed to a lower side of the grating,” as recited in claim 5.

In view of the arguments set forth above, Applicants submit that Yabe, Tajima and Shigeyama, alone or in any reasonable combination, do not teach or suggest all of the limitations of claim 5. Claims 8-13, which depend from claim 5, are not rendered obvious over the cited references. Applicants, therefore, request that the Examiner reconsider and withdraw the rejection of claims 8-13.

VI. Conclusion

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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